ORIANA BRIDGE
Texas Historic Bridges Recording Project
Spanning Salt Fork of Brazos River
at old County Route 207
Peacock Vicinity
Stonewall County
Texas

HAER No. TX-66

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HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
1849 C St., NW
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HISTORIC AMERICAN ENGINEERING RECORD

ORIANA BRIDGE

HAER No. TX-66

Location:	Spanning Salt Fork of the Brazos River at old County Route 207, Peacock vicinity, Stonewall County, Texas. UTM: 14/366300/3760950 USGS: Peacock, Texas, quadrangle (1968).
Date of Construction:	1917.
Designer:	Missouri Valley Bridge and Iron Company, Leavenworth, Kansas.
Builder:	H. H. Shadle; repairs of unknown extent by Austin Brothers, Dallas, Texas.
Present Owner:	Stonewall County.
Present Use:	Abandoned.
Significance:	An increasingly rare example of the once-common camelback truss, the Oriana Bridge is locally significant as a all-weather link in an early road connecting Stonewall County with Jayton, the principal city of Kent County. It is also representative of the use of multi-truss bridges to span rivers whose dramatically fluctuating flows are common throughout Texas.
Historian:	Dr. Mark M. Brown, August 1996.
Project Information:	This document was prepared as a part of the Texas Historic Bridges Recording Project performed during the summer of 1996 by the Historic American Engineering Record (HAER). The project was sponsored by the Texas Department of Transportation (TxDOT).

I. Description

The one-lane riveted steel Oriana Bridge crosses the Salt Fork of the Brazos River with a camelback through truss and three Warren pony trusses totaling about 390 feet in length (see measured drawings and Figures 1 through 3).[1] The combination of multiple spans, required by the wide stream beds and extreme fluctuation in water levels of Texas rivers, as well as the placement of the east anchorage about half way up an 100-foot-high eroded cliff, creates a dramatic setting.

The approximately 78'-long, 8'-high, five-panel pony trusses have a single set of verticals. The top chords are 9" I-beams with a plate riveted to the underside of the web between panel points U3 and U7.[2] Both diagonals and verticals are a little larger than 9" channels; many are embossed "LACKAWANNA" on their webs. The inclined end post at the southwest corner of the western most pony truss is, however, embossed "PHŒNIX". Two 5" angles are used for the lower chord. Several are embossed "ILLINOIS G". Steel rods 7/8" in diameter are used for the lower lateral cross-bracing. The deck beams are 12" I-beams which support timber stringers and planking. The clear roadway is about 14'-6" over the bridge's entire length.

The camelback truss is approximately 156'-0" long, with a maximum height of 25'-0". The top chords are fabricated of 9" channels, 12"-wide plate, and lacing bars. Vertical compression members are laced 6 1/8" channels. Most diagonals are two 3" angles except those connecting U1 to L3 and U7 to L6, which are 3 1/2" angles. The top lateral bracing is crossed steel rods. Laced angles are used for both the portal and the sway bracing. Two 5" x 3 1/2" angles comprise the lower chord. The lower lateral bracing has crossed 1 1/8" rods and the deck beams are 15" I-beams embossed "CARNEGIE USA".

Four concrete piers support the spans. The original arrangement of the east abutment of the camelback is obscured because it, as is the entire connection at L0, is encased in the concrete of a recent repair. The river piers are a dumb-bell shape that would become standard Texas Highway Commission practice. One of the pier caps, between the westernmost pony trusses, is wrapped in a metal collar.

II. History

The Oriana Bridge's spectacular setting aside, the reason for such a substantial bridge is no longer readily apparent. State Route 380, connecting Aspermont, the seat of Stonewall County, with Jayton, the seat of Kent County to the west, did not exist until some time after the

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[1] Dimensions are taken from bridge inspection reports prepared by Bobby Nichols, TxDOT engineering technician, in the 1980s and the author's field inspection on July 22, 1996.

[2] Note that this reinforcing plate on the top chord is not shown in the measured drawings or in the field notes.

1930s.[3] The communities of Oriana and Peacock, located on either side of the bridge, currently give little hint of their former liveliness. Finally, the railroad line that serviced this area has been long abandoned and little remains of the railroad bridge that once spanned the Salt Fork of the Brazos River 150 feet downstream of the highway bridge.

In 1902 the Stonewall County Commissioners authorized a road between Aspermont and the post office at Oriana, on the left bank of the Salt Fork of the Brazos River. Like most early roads in this section of Texas, the road meandered along the section survey lines that divided property. In 1909, Oriana, once known as Antioch, was moved to a location adjacent to the right-of-way of the Stamford and Northwestern Railroad, then under construction. Railroads, and the access to distant markets they offer, can spell life or death to a community. But today all that remains of the town is a cemetery. On the right bank of the Salt Fork, the Peacock brothers moved their country store nearer to the depot the railroad called "Alluvia". The store and the brothers were so strongly associated with the community that it became known as Peacock.[4]

Though the timing of the construction of the Oriana Bridge is unclear, Oriana and Peacock were important communities that needed to be linked by an all-weather highway crossing. On December 13, 1916, the Stonewall County Commissioners contracted with the Missouri Valley Bridge and Iron Company (MVBIC) of Leavenworth, Kansas, to fabricate a bridge to be erected across the Salt Fork "about two miles South-West of the town of Peacock, and about 150 feet south of the Railroad Bridge on said River" for $9,255.00. The Oriana Bridge was accepted by the Commissioners' Court on June 13, 1917, and became an almost immediate source of trouble for the commissioners.[5]

> The minutes for October 8, 1917, report that the County Judge was ordered to
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> proceed at once to secure the services of a competent Bridge Engineer for the purpose of ascertaining the cause of the giving way and failing of the Concrete Piers in the County Bridge across the Salt Fork of the Brazos river near Peacock,

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[3] Kenny Moore and David Hoy, Stonewall County Road Administration; Buddy McNutt, local historian; and Gabe Freeman, lifelong resident. All: personal conversations, July 22, 1996.

[4] Stonewall County, Texas, *Road Minutes,* vol. 1 (Stonewall County Courthouse, Aspermont, Texas), pp. 174-174[a]; Maxine Myers English et al., "Antioch to Oriana," *A History of Stonewall County* (Aspermont, Texas: Stonewall County Historical Commission, 1979), pp. 22-23; "Early Businesses of Peacock," *A History of Stonewall County* (Aspermont, Texas: Stonewall County Historical Commission, 1979), p. 24.

[5] Stonewall County, *Commissioners' Court Minutes* (hereinafter cited as SCCC *Minutes*), vol. 4 (Stonewall County Courthouse, Aspermont, Texas), pp. 162-65 (December 11, 1916), pp. 198-200 (June 13, 1917).

> and also the one across the double mauntain [sic] fork of the Brazos River on the Hamlin Road.[6]

Clearly, something went wrong and went wrong very fast. In February 1918 the commissioners awarded a $6500.00 contract to repair the Oriana Bridge to Austin Brothers, Dallas, Texas. The contract was broken down:

> $1500.00 for the old material at Bridge Site —
> $3250.00 to be paid by the State Highway Commission —
> $750.00 to be paid by Stonewall County, Texas, Feb. 15, 1920 —
> $500.00 to be paid by Stonewall County, Texas, Feb. 15, 1921 —
> $500.00 to be paid by Stonewall County, Texas, Feb. 15, 1922. . . .[7]

The contract raises the question of what was meant by "old material at Bridge Site". Did it refer to the existing piers, to some or all of the truss work built by MVBIC that might have been damaged as a consequence of the faulty piers, or to excess material left over from the original construction? Given that the repair contract was for seventy percent of the original, it is possible that some or all of the trusses were replaced by Austin Brothers. Another possibility is that the high cost reflected the difficulty of propping up the extant trusses while replacing the defective piers. In the absence of the contract specifications, which were not included in the minutes, it may be impossible to know.

Apparently the Commissioners saw the Texas State Highway Department (predecessor of the Texas Department of Transportation), established in 1917, as a solution to their problem. Unfortunately for the beleaguered commissioners, the Highway Department required that the project application be prepared according to specific requirements in order to receive matching funding. July of 1918 saw the Commissioners' Court seeking the assistance of the Dallas engineering firm of Hess and Skinner "in order that plans and Specifications be drawn . . . that will conform to the rules of the State Highway Commission" even though they had previously established specifications for the project.[8]

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[6] SCCC *Minutes*, vol. 4, pp. 222-23 (October 8, 1917).

[7] Ibid., p. 237 (February 16, 1918).

[8] Barbara Stocklin, "Statement of Historic Contexts: Historic Bridges of Texas, 1866-1945," Draft National Register of Historic Places Multiple Property Documentation Form, April 1995, pp. 26-27; SCCC *Minutes*, vol. 4, p. 254 (July 30, 1918). The process of repairing the bridge might have taken some time. In a letter written to the *Aspermont Star,* C. S. Mitchell observed "the road between Peacock and Jayton is very bad. There is no crossing at the Brazos River, and no attempt being made to fix one." See Rita Graham Trammell, "Highways in Stonewall County," *A History of Stonewall County* (Aspermont, Texas: Stonewall County Historical Commission, 1979), p. 72. A historic photograph showing the Camelback truss of the

Recent repairs were made to the eastern abutment, the eastern inclined post of the camelback, and a short part of the lower chord. Deterioration of the span had once again brought the bridge to the Court's attention, when the bridge failed inspection standards and was closed in 1995.

III. The Bridge Companies

A. Missouri Valley Bridge and Iron Company[9]

Originally established in 1874 as the Missouri Valley Bridge Company, this firm was operated by various owners under numerous names until it was reorganized as the Missouri Valley Fabricators, Inc., in 1975.[10] From 1907 until 1921, during which the Oriana Bridge was constructed, Katherine S. Tullock served as president.[11] Between 1913 and 1918 a series of agents based in Dallas represented MVBIC. J. V. Jenkins was apparently its agent from 1916 until at least 1918. Indeed, his initials are on a card, now in the archives of the Kansas State Historical Society, labeled Stonewall County, Texas. It shows that contract number 4883, dated November 27, 1916, was for a bridge consisting of six 80'-0" spans, and that the price was $9,225.00. Given that the contract price was identical to that of the Oriana Bridge, that the Stonewall County Commissioners awarded their contract December 11, 1916, and the large size of the contract ultimately awarded to Austin Brothers, it seems reasonable to seriously question whether the bridge actually built by MVBIC was very different from that standing in 1996.

There are two other interesting aspects to the operation of MVBIC in Stonewall County during this period. The first is that in 1913, but not 1914, Hess and Skinner were agents for MVBIC. This is probably the same engineering firm that Stonewall County approached in late July of 1918 for assistance in obtaining funding from the State Highway Commission. The second aspect is that in early November 1916, MVBIC, through its agent Jenkins, sold two

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Oriana Bridge appears with this essay.

[9]The following paragraphs are based on the following materials in the Missouri Valley Bridge and Iron Works folder (bridge manufacturers file, Texas Department of Transportation, Environmental Affairs Division, Austin, Texas): untitled history of MVBIC, [1975]; abstracts of *Worley's Directory of Dallas, Texas* (Dallas, Texas: John F. Worley Directory Company, 1913-1920); copies of MVBIC contract cards (Kansas State Historical Society, Topeka, Kansas).

[10]For an example of a pin-connected Pratt truss fabricated by MVBIC, see U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-53, "Tommelson Creek Bridge," 1996, Prints and Photographs Division, Library of Congress, Washington, D.C.

[11]See untitled history of MVBIC, [1975] (bridge manufacturers file, Texas Department of Transportation, Environmental Affairs Division, Austin, Texas).

eighty-foot spans to a "H. H. Shadil" of Aspermont, Texas. Shadle, as his name is spelled in the Stonewall County records, did extensive bridge construction and repairs throughout the county.[12]

B. Austin Brothers

Austin Brothers was organized as an independent company in 1908. In 1910, they acquired land for their own fabrication plant. This put them in an excellent position to both build standardized bridges and to repair existing work quickly. As the 1910s progressed, Austin Brothers increasingly became the dominant bridge company in Texas. Unfortunately, Austin Brothers' Oriana Bridge contract was awarded in the midst of a management buy-out and consequently there are no corporate records surviving from this period.[13]

While there is little documentary evidence about the extent of Austin Brothers' involvement in the Oriana Bridge, there is additional physical evidence. In the course of mitigation on numerous Warren pony-trusses, Barbara Stocklin, Texas Department of Transportation Environmental Affairs Division, has concluded that each bridge fabricator had a distinctive riveting and gusset plate pattern. A comparison of Warren pony trusses known to have been fabricated by Austin Brothers and MVBIC with those at Oriana strongly tips the scales in favor of Austin Brothers.[14] When combined with the other circumstantial evidence discussed above, it seems plausible to suggest that the three Warren pony trusses at Oriana are probably Austin replacements. In the absence of another riveted camelback by Austin surviving from this period for comparison, a similar attribution of the main span must remain a more tenuous proposition.

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[12]For an extant example of H. H. Shadle's work dating to 1935, see HAER No. TX-67, "Ward Brazos River Bridge," 1996. For an example of a Shadle contract contemporary with the Oriana Bridge, among many others, see SCCC *Minutes*, vol. 4, pp. 229-30 (January 14, 1918).

[13]Shannon Miller, *The First 50 Years: 1918-1968* (Dallas: Austin Bridge Company, 1974), pp. 1-2; David Vance, Director of Communications, Austin Industries, Dallas, Texas, personal communication, July 29, 1996.

[14]For more a more elaborate discussion of Stocklin's argument, see U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-29, "Bone Crossing Bridge," 1996, Prints and Photographs Division, Library of Congress, Washington, D.C.

SOURCES CONSULTED

"Early Businesses of Peacock." *A History of Stonewall County.* Aspermont, Texas: Stonewall County Historical Commission, 1979.

English, Maxine Myers, et al. "Antioch to Oriana." *A History of Stonewall County.* Aspermont, Texas: Stonewall County Historical Commission, 1979.

Freeman, Gabe. Lifelong resident, personal conversation, July 22, 1996.

McNutt, Buddy. Local historian, personal conversation, July 22, 1996.

Miller, Shannon. *The First 50 Years: 1918-1968.* Dallas: Austin Bridge Company, 1974.

Missouri Valley Bridge and Iron Works folder. Bridge manufacturers file, Environmental Affairs Division, Texas Department of Transportation, Austin, Texas.

Moore, Kenny and David Hoy. Stonewall County Road Administration, personal conversation, July 22, 1996.

Nichols, Bobby. Bridge Inspection Report, n.d., on file at the Texas Department of Transportation District Office, Abilene, Texas.

Stonewall County, Texas. *Commissioners' Court Minutes.* Stonewall County Courthouse, Aspermont, Texas.

_____. *Road Minutes.* Stonewall County Courthouse, Aspermont, Texas.

Stocklin, Barbara. "Statement of Historic Contexts: Historic Bridges of Texas, 1866-1945." Draft National Register of Historic Places Multiple Property Documentation Form, April 1995. Environmental Affairs Division, TxDOT, Austin, Texas.

Stonewall County Historical Commission. *A History of Stonewall County.* Aspermont, Texas: Stonewall County Historical Commission, 1979.

Trammell, Rita Graham. "Highways in Stonewall County." *A History of Stonewall County.* Aspermont, Texas: Stonewall County Historical Commission, 1979.

U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-29, "Bone Crossing Bridge," 1996, Prints and Photographs Division, Library of Congress, Washington, D.C.

_____, HAER No. TX-53, "Tommelson Creek Bridge," 1996. Prints and Photographs Division, Library of Congress, Washington, D.C.

_____, HAER No. TX-67, "Ward Brazos River Bridge," 1996. Prints and Photographs Division, Library of Congress, Washington, D.C.

Vance, David. Director of Communications, Austin Industries, Dallas, Texas, personal communication, July 29, 1996.

APPENDIX A: Suggestions for Further Research

This recording project has raised several issues that remain unanswered due to limitations of time and resources.

1. Newspaper reports in the *Aspermont Star* might shed light on the problem with the original bridge piers as well as the extent of Austin Brothers's work. Some copies of the *Aspermont Star* can be found in the Southwest Collection, Texas Tech, Lubbock, Texas. This collection was closed during the summer of 1996.

2. Is the engineering firm of Hess and Skinner, or its successors, still in business, and would they have records that might clarify their role?

3. Did the State Highway Commission actually contribute to the cost of repairs? What impact, if any, did its requirements have on the design?

4. What was the full extent and nature of H. H. Shadle's construction practice?

APPENDIX B: Untitled History of the Missouri Valley Bridge and Iron Company, [1975].

(MVBIC folder, bridge manufacturers file, Environmental Affairs Division, Texas Department of Transportation, Austin, Texas.)

The Missouri Valley Bridge Company was formed as a partnership in 1874 by Farnsworth and Reeves at Leavenworth, Kansas, then one of the leading cities on the Missouri River and the principal starting point of the Santa Fe Trail.

In 1878, the business was taken over by the Insley and Shire Bank and A. J. Tullock, then residing in Rockford, Illinois, was employed as Engineer and Manager. In 1880, he purchased an interest in the business, which was then operated as the "Missouri Valley Bridge and Iron Works, Insley, Shire & Tullock, Proprietors".

In 1888, the Insley and Shire interests were acquired by A. J. Tullock and the operation was continued as the "Missouri Valley Bridge and Iron Works, A. J. Tullock, Proprietor" until the death of the owner in 1904.

During this period, bridge construction was performed for the principal railroads of the West and Southwest, and for the Mexican Central (National Lines of Mexico), also the original Galveston Bay Bridge and the Wharf at Tampico, Mexico, were constructed. Also various bridges and steel structures were designed and fabricated at the shop operated by the Company near the Union Depot. The company offices were at one time in the south wing of the Union Depot.

In 1904, the Missouri Valley Bridge & Iron Company was formed, incorporated under the laws of the State of Kansas, the active members being past employees of the business with the exception of Amos E. Wilson, a local banker, who acted as President until 1907, when Katherine S. Tullock, Vice President, assumed the presidency, holding this office until 1921, when H. S. Tullock became President.

During this period, a continuance of railroad bridge construction was carried on, together with the construction of such bridges as the McKinley Bridge and the foundation for the Free Bridge, each across the Mississippi River at St. Louis, Missouri, numerous bridges across the Missouri and larger rivers of the South, Dam No. 14 on the Ohio River near Wheeling, West Virginia, together with smaller structires of this class; and during World War I, the construction of the Ferris Type Ships (Wood) at Quantico, Virginia, together with a floating Dry Dock at Galveston, Texas, for the United States Shipping Board, Emergency Fleet Corporation. Work on design and fabrication of bridges in the middle west continued at the Missouri Valley Steel shop.

In the period from 1921 to 1946, the Company continued in railroad bridge construction, with particular attention to deep and difficult subaqueous foundations, including the foundations for the Carquinez Straits Bridge at Crockett in upper San Francisco Bay, and later sponsoring for a group of Joint Venturers, the construction of the East Bay Foundations for the San Francisco Bay Bridge. The Company also became interested in power plant work, building plants in Lawrence and Abilene, Kansas. The Shipyard was activated in 1939 to build river towboats and barges.

During World War II the Company was one of five companies who constructed a Shipyard and built LST landing craft and other floating equipment at Evansville, Indiana. The Company also operated a Shipyard at Leavenworth, Kansas, where LCT's and LCM's were built.

In 1946 the Shop and Shipyard of Missouri Valley Bridge and Iron Company was acquired by Missouri Valley Steel, Incorporated, a new corporation with J. V. Oliver as president. The original incorporators were R. J. Brown, Jr., Jack Mitchell, R. D. Keeler, E. L. Hardeman, J. V. Oliver, Tim Sannon, Bink Ingersoll, W. Erickson and I. W. Rogers. Bill Oliver joined the Company several months later.

At the Shipyard, boats, barges and floating equipment were built and during the early 1950's, passenger cargo vessels and ocean going harbor tugs were constructed and delivered to New Orleans and Charleston, ~~West Virginia~~ South Carolina.

The Shop developed into a fabricator of pollution control equipment and shipped material to all the states of the union, including Hawaii and Alaska, and also to foreign countries such as Brazil, Italy, etc.

On June 28, 1975, the shop was destroyed by fire.

On December 9, 1975, a new Kansas Corporation, Missouri Valley Fabricators, Inc., was formed for the purpose of buying the remaining Assets of Missouri Valley Steel, Inc., shop facility located at Lawrence & Pennsylvania and to acquire financing to rebuild the burned out building. The incorporators were George Huvendick, Floyd O. Parsons, John F. Mitchell, Jr., George Sanger, Russel L. Summers, Charles M. Olson, and Freddie E. Thomas.

It is the intention of the new Corporation to pursue the same type of fabrication as Missouri Valley Steel, Inc., specializing in the fabrication of pollution control equipment for customers with whom we are thoroughly familiar and have helped to develop.